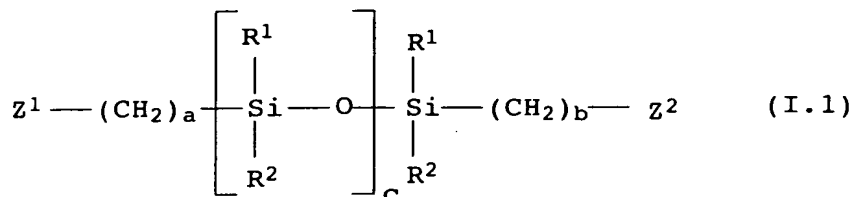


We claim:

1. A polyether-urethane comprising at least one allyl group,  
 5 which comprises, in incorporated form,
  - a) at least one polyether which comprises a group reactive toward isocyanate groups, and an allyl group,
  - 10 b) optionally at least one compound which comprises at least two groups reactive toward isocyanate groups, and
  - c) at least one polyisocyanate.
- 15 2. A polyether-urethane as claimed in claim 1, which comprises, in incorporated form, at least one compound b) chosen from
  - b1) compounds with a molecular weight in a range from 56 to 280 g/mol which contain two groups reactive toward  
 20 isocyanate groups per molecule,
  - b2) polyether polyols with a number-average molecular weight in the range from about 300 to 5000,
  - 25 b3) compounds with a number-average molecular weight of more than 280 which contain at least two active hydrogen atoms and at least one siloxane group per molecule,
 and mixtures thereof.
- 30 3. A polyether-urethane as claimed in claim 2, which comprises, in incorporated form, at least one compound b3) chosen from:
  - polysiloxanes of the formula I.1



in which

a and b, independently of one another, are 1 to 8,

5 c is 2 to 100,

R<sup>1</sup> and R<sup>2</sup>, independently of one another, are C<sub>1</sub>-C<sub>8</sub>-alkyl, benzyl or phenyl,

10 Z<sup>1</sup> and Z<sup>2</sup>, independently of one another, are OH, NHR<sup>3</sup> or a radical of the formula II



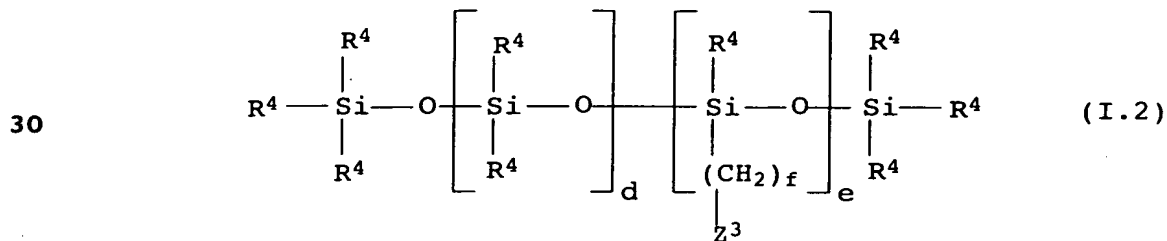
15 where

in the formula II the order of the alkylene oxide units is arbitrary and

20 v and w, independently of one another, are an integer from 0 to 200, where the sum of v and w is > 0,

R<sup>3</sup> is hydrogen, C<sub>1</sub>-C<sub>8</sub>-alkyl or C<sub>5</sub>-C<sub>8</sub>-cycloalkyl;

25 - polysiloxanes of the formula I.2



35 in which

the order of the siloxane units is arbitrary,

40 the radicals R<sup>4</sup> are each, independently of one another, C<sub>1</sub>-C<sub>8</sub>-alkyl, preferably methyl, benzyl or phenyl,

d is an integer from 5 to 1000,

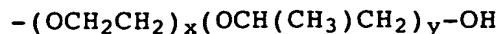
e is an integer from 2 to 100,

45

f is an integer from 2 to 8,

57

$Z^3$  is OH,  $NHR^3$ , where  $R^3$  is as defined above, or a radical of the formula III



5

where

in the formula III the order of the alkylene oxide units is arbitrary,

10

$x$  and  $y$ , independently of one another, are an integer from 0 to 200, where the sum of  $x$  and  $y$  is  $> 0$ ,

and mixtures thereof.

15

4. A process for the preparation of a polyether-urethane comprising at least one allyl group which comprises, in incorporated form,

20

a) at least one polyether which comprises a group reactive toward isocyanate groups, and an allyl group,

b) optionally at least one compound which comprises at least two groups reactive toward isocyanate groups, and

25

c) at least one polyisocyanate,

and in which

30

i) in a first stage the compounds a), optionally some of the compounds b) and at least some of the polyisocyanates c) are reacted without the addition of a solvent, at a temperature of at least  $60^\circ\text{C}$  and at a ratio of isocyanate group equivalents to equivalents of groups reactive toward isocyanate groups in a range from 1.5:1 to 2.2:1, to give an isocyanate group-comprising prepolymer, and

35

ii) in a second stage the prepolymer obtained in step i) is reacted with the compounds b) and c) not already used in step i) to give the polyether-urethane.

40

5. A process as claimed in claim 4, in which, in stage i), a prepolymer with a glass transition temperature  $T_g$  of at most  $100^\circ\text{C}$ , preferably of at most  $60^\circ\text{C}$ , is obtained.

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6. A process as claimed in claim 5, in which the reaction in step i) takes place at a temperature which is higher than the glass transition temperature of the prepolymer.
- 5 7. A process as claimed in any of claims 4 to 6, in which the compounds b) used in step ii) have hydroxyl groups as groups reactive toward isocyanate groups, and the reaction takes place without the addition of a solvent.
- 10 8. A process as claimed in any of claims 4 to 6, in which the compounds b) used in step ii) have primary or secondary amino groups as groups reactive toward isocyanate groups, and the reaction takes place in the presence of a protic-polar solvent.
- 15 9. A water-soluble or water-dispersible polymer which comprises, in copolymerized form, at least one polyether-urethane as defined in any of claims 1 to 3, and at least one free-radically polymerizable compound which has at least one  
20  $\alpha,\beta$ -ethylenically unsaturated double bond.
10. A polymer as claimed in claim 9, which comprises, in copolymerized form, at least one free-radically polymerizable hydrophilic nonionic compound M1).
- 25 11. A polymer as claimed in claim 10, where the compound M1) is chosen from primary amides of  $\alpha,\beta$ -ethylenically unsaturated monocarboxylic acids, N-vinyllactams, N-vinylamides of saturated monocarboxylic acids, esters of  $\alpha,\beta$ -ethylenically  
30 unsaturated mono- and dicarboxylic acids with C<sub>2</sub>-C<sub>4</sub>-alkane-diols, amides of  $\alpha,\beta$ -ethylenically unsaturated mono- and dicarboxylic acids with C<sub>2</sub>-C<sub>4</sub>-aminoalcohols which have a primary or secondary amino group, vinyl ethers, nonionic, hydrophilic vinyl- and allyl-substituted heterocyclic  
35 compounds and mixtures thereof.
12. A polymer as claimed in claim 11, which comprises, in copolymerized form, a compound M1) chosen from acrylamide, methacrylamide, N-vinylpyrrolidone, N-vinylcaprolactam,  
40 N-vinylformamide, N-vinylacetamide and mixtures thereof.
13. A polymer as claimed in any of claims 10 to 12, which additionally comprises, in copolymerized form, at least one free-radically polymerizable compound M2) with an  
45  $\alpha,\beta$ -ethylenically unsaturated double bond and at least one ionogenic and/or ionic group per molecule.

14. A polymer as claimed in any of claims 10 to 13, which additionally comprises, in copolymerized form, at least one free-radically polymerizable crosslinking compound with at least two  $\alpha,\beta$ -ethylenically unsaturated double bonds per molecule.
15. A polymer as claimed in any of claims 10 to 14, which is obtainable by free-radical copolymerization in the presence of a component d) chosen from
- d1) polyether-containing compounds,
  - d2) polymers which have at least 50% by weight of repeat units derived from vinyl alcohol,
  - d3) starch and starch derivatives,
- and mixtures thereof.
16. A polymer as claimed in any of claims 10 to 15, obtainable by free-radical polymerization of
- 1 to 25% by weight, based on the total weight of the components used for the polymerization, of at least one polyallyl-polyether-urethane,
  - 50 to 99% by weight of at least one free-radically polymerizable nonionic compound M1),
  - 0 to 25% by weight of at least one monomer M2) with at least one ionogenic and/or ionic group per molecule,
  - 0 to 10% by weight of at least one crosslinker,
- optionally in the presence of up to 25% by weight of at least one component d), as defined in claim 10.
17. A process for the preparation of a polymer as defined in any of claims 10 to 16 by free-radical polymerization in an aqueous solvent at a pH of from 5.5 to 8.0.
18. A process as claimed in claim 17, comprising a first polymerization step and a subsequent second polymerization step, where the reaction mixture between the first and second polymerization step is subjected to stripping with steam or to a steam distillation.

19. A cosmetic or pharmaceutical composition comprising
- 5           A) at least one water-soluble or water-dispersible polymer  
            as defined in any of claims 9 to 16, and
- B) at least one cosmetically acceptable carrier.
20. A composition as claimed in claim 19, where component B) is  
chosen from
- 10           i) water,
- ii) water-miscible organic solvents, preferably  
                C<sub>1</sub>-C<sub>4</sub>-alkanols,
- 15           iii) oils, fats, waxes,
- iv) esters of C<sub>6</sub>-C<sub>30</sub>-monocarboxylic acids with mono-, di- or  
                trihydric alcohols which are different from iii),
- 20           v) saturated acyclic and cyclic hydrocarbons,
- vi) fatty acids,
- 25           vii) fatty alcohols
- and mixtures thereof.
21. A composition as claimed in claim 19 or 20, further
- 30           comprising at least one constituent different from copolymer  
            A which is chosen from cosmetically active ingredients,  
            emulsifiers, surfactants, preservatives, perfume oils,  
            thickeners, hair polymers, hair and skin conditioners, graft  
            polymers, water-soluble or dispersible silicone-containing
- 35           polymers, light protection agents, bleaches, gel formers,  
            care agents, colorants, tints, tanning agents, dyes,  
            pigments, bodying agents, humectants, refatting agents,  
            collagen, protein hydrolysates, lipids, antioxidants,  
            antifoams, antistats, emollients and softeners.
- 40           22. A composition as claimed in any of claims 19 to 21 in the  
            form of a solution, a gel, wax, foam, spray, an ointment,  
            cream, emulsion, suspension, lotion, milk or paste.
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## 61

23. The use of a polymer as defined in any of claims 9 to 16 in skin cleansing compositions, compositions for the care and protection of the skin, nail care compositions, preparations for decorative cosmetics and hair treatment compositions.

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24. The use as claimed in claim 23 in hair treatment compositions as thickener, setting agent and/or as conditioner.

10 25. The use as claimed in claim 24, where the composition is in the form of a hair gel, hair mousse, shampoo, setting foam, hair tonic, hair spray or hair foam.

15 26. The use of a polymer as defined in any of claims 9 to 16 as auxiliary in pharmacy preferably as or in (a) coating composition(s) for solid medicament forms, and as or in (a) coating composition(s) for the textile, paper, printing and leather industry, and also for agrochemistry.

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